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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/964,437 | 09/28/2001 | Masafumi Fukuda | 110738 | 2044 |

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| EXAMINER |
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WU, XIAO MIN

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| ART UNIT | PAPER NUMBER |
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2674

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,437

Applicant(s)

FUKUDA, MASAFUMI

Examiner

XIAO M. WU

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,9 and 18-22 is/are rejected.
- 7) ☒ Claim(s) 3,4,7,8 and 10-17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5,9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimizu (US Patent No. 6,046,633).

As to claim 1, Shimizu discloses a display driver (Fig. 6) which drives a display panel (10, Fig. 6) comprising: voltage generating means (Vref, Fig. 6) which generate a given voltage (e.g. reference voltage); a voltage-follower-type operational amplifier circuit (11f, 11g) which generates a driving voltage based on the given voltage (Vref); and switching means (11r, 11s) for causing the voltage-follower-type operational amplifier circuit to generate the driving voltage based on the given voltage (Vref) in a first mode and causing the voltage-follower-type operational amplifier circuit to generate the driving voltage based on an external voltage supply (e.g. 11n, 11p) in a second mode.

As to claim 9, Shimizu discloses that the display panel (10) is a simple matrix panel.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (US Patent No. 6,046,633) in view of Misawa (US Patent No. 5,250,931).

As to claim 2, it is noted that Shimizu does not disclose that the driver is mounted on a glass substrate on which a display panel is formed, and wherein the external voltage supply in the second mode is supplied through a transparent film formed on the glass substrate. Misawa is cited to teach a LCD display device similar to Shimizu. As shown in Fig. 1, Misawa teaches that the display drivers (12, 21) are mounted on a glass substrate (11) and Misawa further discloses that the voltage is applied to the picture element through a transparent film electrode (94, Fig. 3B) which is formed on the glass substrate (86, Fig. 3B). It would have been obvious to one of ordinary skill in the art to have modified Shimizu with the features of the driver and transparent film formed on the substrate as taught by Misawa because Misawa can provide an active matrix panel which has low active element pitch and to provide an active matrix panel that is low in price and high in resolution (col. 2, line 40-44).

5. Claims 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (US Patent No. 6,046,633) in view of Ishiyama et al. (US Patent No. 5,627,457).

As to claims 5 and 6, it is noted that Shimizu does not disclose the voltage generating means generates the given voltage by dividing a potential difference between a given power source voltage at a high potential side and a given power source voltage at a low potential side by a resistor. Ishiyama is to teach a display driver which including a voltage generating means to generating a plurality voltage levels by using a voltage divider such as a resistor (see Fig. 5). It

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would have been obvious to one of ordinary skill in the art to have modified Shimizu with the features of voltage generator as taught by Ishiyama because Ishiyama can provide power supply that can enable designs with lower power consumption and can also enable higher display qualities (col. 6, lines 8-10).

6. Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misawa (US Patent No. 5,250,931) in view of Shimizu (US Patent No. 6,046,633).

As to claims 18, 22, Misawa discloses a display panel which is formed on a glass substrate (11, Fig. 1), and a plurality of display driver (12, 21) which are mounted on the glass substrate and drive the display panel, wherein each of the display drivers generate driving voltage for driving the display panel based on a power source voltage supplied through an interconnecting line (36) formed on the glass substrate (11). Misawa also discloses that the interconnecting line which is supplied to another semiconductor device (e.g. 17, 18, 19) mounted on the glass substrate (11) as require in claim 22. It is noted that Misawa does not specifically disclose the display drivers include a voltage-follower-type operational amplifier circuit. However, using a voltage-follower-type operation amplifier circuit in a LCD display driver is well known in the art such as taught by Shimizu (see elements 11f, 11g in Fig. 6). It would have been obvious to one of ordinary skill in the art to have modified Misawa with the features of the voltage-follower-type operational amplifier circuit as taught by Shimizu because Shimizu's circuit can eliminate an undershoot and an overshoot from signal lines to be driven regardless of the output characteristics of component operational amplifiers (col. 5, lines 57-61).

As to claim 19, Misawa discloses the display panel is an active matrix panel.

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As to claims 20 and 21, Shimizu discloses the voltage supplied (11c, Fig. 6) through the interconnecting line is gray scale driving voltage.

Allowable Subject Matter

7. Claims 3, 4, 7, 8 and 10-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The US Patents 6,067,062, 6,411,273 are cited to teach a LCD driver.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiao Wu whose telephone number is (703) 305-4721.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington.

VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377

xw

December 14, 2003


XIAO WU
PRIMARY EXAMINER
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